Application. No. 10/709,439

Amendment Dated: MARCH 15, 2006

Response to Office Action dated December 20, 2005



# CERTIFICATE OF EXPRESS MAILING

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Achyut K. Dutta

Printed name of person signing Certificate

MARCH 15, 2006

Date of signature

(408) 282-3628

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### Contents:

This Certificate contains following submitted documents,

- (a) Amendment including Response of Office Action (Application. No. 10/709,439) Pages 17
- (b) Description of the Telephone Communication (Page 5)
- (c) This Certificate of Express Mailing (Page 1)
- (d) Acknowledgement Postcard (1)

Banpil Photonics, Inc. Application. No. 10/709,439

Description of Interview Dated: March 15, 2006 Interview Summary Mailed March 9, 2006

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

## PATENT APPLICATION

Applicant(s): Achyut Kumar Dutta

Case:

Serial No.: 10/709,439

Filed: MAY 5, 2004

Group Art Unit: 2814

**Examiner: WAI-SING LOUIE** 

Title: MULTICOLR PHOTODIODE ARRAY AND METHOD OF

MANUFACTURING THEREOF

**COMMISSIONER FOR PATENTS** Mail Stop Amendment P.O. Box 1450 Alexandria, VA 22313-1450

SIR:

## **DESCRIPTION OF PHONE INTERVIEW**

Date:

March 3 and March 6, 2006

Participants: Wai-Sing Louie (Examiner) and Achyut Dutta (Applicant)

Examiner and applicant had telephone conference on claim 1 for amending the claim, based on the proposed specification and not covering the Prior Art (Tsuji: US 6,350,998). Applicant pointed out that the multiplication layer in Tsuji contains aluminum and the highly doped thick layer 7 is not U-shaped layer surrounding a window for the incident light to reach the InGaAs thin layer. Based on the teleconference, EXAMINER and applicant reached to the agreement on for the claim 1, if amended as shown in Page 3.

In addition, Examiner and Applicant also reached to the agreement to allow to include a new claim as 21, wherein the window shape is in square, rectangular, or circular in shape, as shown in Page 3, and other same as cited in Claim 1

Applicant also briefly went through others amended claims .2, 5, 14, 17, and 20, depends with claim 1. Examiner mentioned that if those claims are dependent to the suggested amended claim 1, they usually should be Ok.

Amendments to the Claim 1 and new claim 21, which are agreed between Examiner and Applicant, begin on Page 3.

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# Claim 1 amended and new claim 21 included, based on the agreement beween Examiner and Applicant

- 1. (currently amended) A photodiode comprising,
  - (a) first ohmic contact layer;
  - (b) a semiconductor structure comprising consisting of;
    - (i) a <u>semiconductor</u> substrate;
    - (ii) a highly doped buffer layer, material-type same as the substrate;
    - (iii) a single or multiple layers of InGaAs with different <u>compositions</u> of In, Ga, and As without containing of Al for absorption layer;
    - (iv) a doped-thin layer of InGaAs, and;
    - (v) a highly doped-thick layer of InGaAs for second ohmic contact, wherein a window is created for incident light to reach the thin layers and wherein window is in u-shape or horse-shoe shape, and;
  - (c) a second ohmic metal contact on the top of the doped-thick layer.
- 21 (new) A photodiode comprising,

first ohmic common contact layer;

a semiconductor structure comprising of;

a semiconductor substrate;

a highly doped buffer layer, material-type same as the-substrate;

at least one layer of InGaAs with different compositions of In, Ga, and As without containing of Al for absorption layer;

a doped-thin layer of InGaAs, and;

a highly doped-thick layer of InGaAs for second ohmic contact, wherein a window is created for the incident light to reach to the InGaAs thin layer and wherin the said window is in square-shape, or rectangular-shape, or circular-shape, and;

a second ohmic metal contact on the top of the said doped-thick layer.

115/06.

Description of Interview Dated: March 15, 2006 Interview Summary Mailed March 9, 2006

Date

Respectfully submitted,

Achyut Dutta, Applicant and Inventor Banpil Photonics, Inc.

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